US Army Corps
of Engineers
Baltimore District

CHESAPEAKE BAY PROGRAM
FY2002 ANNUAL REPORT

Chesapeake Bay Program

Background

The Chesapeake Bay Program (CBP) is a unique partnership that has been directing and conducting the restoration of the Chesapeake Bay since the signing of the historic Chesapeake Bay Agreement in 1983. The CBP partners include the states of Maryland, Pennsylvania, and Virginia; the District of Columbia; the Chesapeake Bay Commission; and the Environmental Protection Agency, representing the Federal government. Again in June 2000, the partners rededicated themselves to the restoration effort by signing the *Chesapeake 2000 Agreement* (C2K). The U.S. Army Corps of Engineers has been actively involved in the Bay Program since 1984. Baltimore District serves as the lead Corps District, representing Norfolk and Philadelphia Districts, and the Engineer and Research Development Center. The Corps' participation in the CBP involves coordination, technical support, and planning, design, and construction of restoration projects.

CBP Hot News in FY02

New Director of the Chesapeake Bay Program: In June of 2002, Rebecca Hanmer was selected as the new Director of the Chesapeake Bay Program. She has worked for the federal government for 38 years. After working for the U.S. Department of Health, Education and Welfare, she joined the U.S. Environmental Protection Agency at its inception in 1971. She held numerous executive positions, and was most recently director of EPA Region III's Water Protection Division.

Setting and Meeting Nutrient Reduction Goals is Biggest Hurdle: The Bay Program has been busy trying to develop new water quality standards for the Bay and its tributaries. In the late 1990's, the Bay was placed on EPA's list of impaired waters in both Virginia and Maryland. In 1999, a court agreement in Virginia stated that a cleanup plan, known as a Total Maximum Daily Load (TMDL), had to be developed by 2011. One of the key commitments in the Chesapeake 2000 Agreement is to correct the nutrient and sediment related problems in the Bay and tributaries to remove it from the list of impaired waters by 2010 so that a TMDL will not be needed.

The first step is to develop new water quality standards, which will be followed by the development of nutrient reduction goals for each of the tributaries in order to meet those standards. Once the river-specific numbers are set, tributary strategies will be developed to lay out a plan for how to reach those goals. Unfortunately, the nutrient reduction goals were supposed to be established by 2001, but have been delayed and probably will not be set until Spring of 2003. With tributary strategies not being developed until 2004, it will be a challenge to de-list the Bay by 2010. So far, the modeling is indicating that shoreline erosion is a much more significant factor to the Bay's health than expected.

Farm Bill: The Farm Bill, signed on May 13, 2002, includes roughly $17 billion for conservation programs nationwide, an 80 percent increase from previous funding. The funds could help boost nutrient control programs, wildlife enhancement, wetland restoration and farmland preservation throughout the Bay watershed. Agriculture contributes about two-fifths of the nitrogen and phosphorus reaching the Bay, making it the largest single source of nutrient pollution. Computer models show that new nutrient reduction techniques could dramatically decrease farm runoff.

Delaware, New York and West Virginia Join Bay Clean-Up: The three headwater states, Delaware, New York and West Virginia all signed agreements with the Bay Program committing their states to work cooperatively to achieve the nutrient and sediment reduction targets necessary to achieve the goals of a clean Chesapeake Bay by 2010.

The agreement does not make the three headwater states members of the Bay Program, but it does commit them to work toward achieving nutrient and sediment goals that will be set for the Bay in the near future.

None of the three states were asked to join the Bay Program when it was created in 1983 because they were considered to be too far away to significantly affect the Bay, and only a portion of each state is within the Chesapeake basin. However, the situation changed in the late 1990's when it became apparent

that the upstream tributaries would be needed to help remove the Bay from EPA's list of impaired waters.

Forest Buffer Goal: During FY02, the Bay Program partners met the Chesapeake 2000 Agreement goal of planting 2,010 miles of forest buffers, and they met it eight years early. The agreement had called for planting the forest buffers by 2010. The partners are now working to establish a new goal to be met by the year 2010. Research shows that riparian forests are strongly linked with improved stream water quality and fish and wildlife habitat.

Non-Native Oyster Issue: A major Bay issue that continued to be debated throughout the year is the potential introduction of a non-native oyster species from Asia, the Suminoe oyster (*Crassostrea ariakensis*), into the Bay waters for aquaculture production. Due to successful results of field experiments conducted by the Virginia Institute of Marine Science (VIMS), this species is becoming a prime candidate for aquaculture in Virginia waters to supplement the native oyster. The Virginia Seafood Council had submitted a proposal to the Virginia Marine Resource Commission earlier in the year but retracted it after concerns were raised by VIMS and others. The Bay Program had established a technical panel to review the proposal and they were poised to oppose it. The Virginia Seafood Council is revising their original proposal, specifically the method of breeding the non-native oyster, and plan to submit a new proposal.

At the request of the Bay Program, the National Academy of Sciences is reviewing the non-native oyster issue and will complete their report in the summer of 2003. Their study will address how the non-native oyster might affect the ecology of the Bay, including impacts to the native oyster, water quality, habitat and the spread of human and oyster diseases.

$19 Billion Price Tag for Bay Restoration: The Chesapeake Bay Commission conducted an extensive financial analysis and determined that it will take on the order of $19 billion to achieve the roughly 100 goals identified in the Chesapeake 2000 Agreement by the end of 2010. Current state and federal funding levels for Bay-related activities fall about $13 billion short of what is needed. Roughly $11.6 billion is needed for water quality improvements, more than 60 percent of the price tag. The remaining $7.7 billion is for various other projects such as restoring oysters, expanding grass beds, preparing watershed plans, and improving education programs.

Chesapeake 2000 Agreement

***Chesapeake 2000 Agreement* (C2K) Goals:** The C2K Agreement is a comprehensive blueprint for restoring the Bay and its living resources over the next decade. It identifies more than 90 specific goals that are grouped into the following 5 major goals:

- Living Resources Protection and Restoration
- Vital Habitat Protection and Restoration
- Water Quality Protection and Restoration
- Sound Land Use
- Stewardship and Community Engagement

The Corps continued to meet with various Bay partners to discuss how the Corps can partner with other agencies to help meet these goals.

Keystone Commitments: During the year, the Implementation Committee conducting a cursory exercise to determine which of the nearly 100 C2K commitments were "keystone." The purpose of the exercise was to try to prioritize some of the top goals and potentially start to place more focus on them. "Keystone" was defined as "a central commitment that has the potential to drive others which, if met, also achieves or greatly facilitates achieving other commitments. Or, if not met, seriously jeopardizes the progress of other commitments." The top 11 keystone commitments are summarized below:

- Develop and implement watershed management plans
- Correct nutrient and sediment related problems
- Develop multi-species management plans
- Preserve 20 percent of the land in the watershed
- Achieve a tenfold increase in the native oyster
- Reduce the rate of harmful sprawl
- Provide a meaningful Bay or stream outdoor experience for every school student
- Revise and implement existing fisheries management plans
- Restore 25,000 acres of wetlands
- Conserve forests
- Fulfill goal of a Bay free of toxics

Corps CBP Activities in FY02

Meeting with Bay States: On 14 February 2002, a high-level meeting was held between Corps officials from NAD, NAB and NAO; officials from the State of Maryland, the Commonwealth of Virginia, and the Commonwealth of Pennsylvania; staff from Senator Sarbanes's office and Senator Warner's office; and a representative from the Chesapeake Bay

Commission, who arranged the meeting. The purpose of the meeting was to discuss the Corps' involvement in the Bay restoration effort and whether or not the senators should attempt to include new programs or projects in a potential WRDA '02 bill. After lengthy discussions, it was determined that the Corps already has extensive restoration authority throughout the Bay and that the Corps and the states must continue to coordinate to determine the best way to mesh our two distinct project processes. The Corps has been continuing to coordinate with the three states on our projects and programs.

Oyster Restoration: The first goal listed in the C2K Agreement is to achieve a tenfold increase in native oysters in the Bay by 2010. This includes developing and implementing a strategy by 2002. Through the Corps' Oyster Recovery Project, the Corps has been actively involved in this effort and has been working closely with the Bay partners to develop a strategy for the tenfold increase. The draft Comprehensive Oyster Management Plan (COMP) was released to the public for review in late 2002. The Corps' long-term oyster plan will complement the COMP and will provide more detailed implementation plans.

Both Districts constructed oyster restoration projects in 2002. Norfolk built 158 acres of sanctuaries in the Tangier Sound, including 8 acres of high-relief reefs and 150 acres of low-relief reefs. Baltimore District constructed approximately 100 acres of low-relief reefs in the Choptank and Patuxent Rivers, 20% of which were sanctuaries. All of the Baltimore reefs are to be seeded with spat on shell. Seeding using disease resistant seed stock will occur in 2003 on the Tangier reefs.

As discussed previously, the non-native oyster issue was prevalent throughout the year. Through the Living Resources Subcommittee and the Federal Agencies Committee, the Corps, specifically the Oyster Recovery project team, has been actively involved in the debate regarding the introduction of such a species.

Bay Model: The Chesapeake Bay Environmental Model Package (CBEMP), developed by the Engineer Research and Development Center (ERDC), has been employed for a variety of management purposes since its initial delivery in 1992. The most recent upgrade of CBEMP is guiding management efforts to remove the bay from an EPA list of impaired water bodies. Numerous management and sensitivity scenarios have been run by the EPA Chesapeake Bay Program and by ERDC. All scenarios have been aimed at determining nutrient and solids load reductions necessary to restore the bay. ERDC personnel have been regular attendees at Model and Research Subcommittee meetings and have advised on interpretation of model results. A detailed technical report on the model is in preparation. ERDC is initiating innovative model developments to expand the clean-up effort. These developments include an investigation into the impact of a ten-fold increase in oyster population, called for in the Chesapeake 2000 Agreement, and initial stages of a sediment transport model for the bay.

SAV Restoration and Protection Strategy: To achieve one of the C2K commitments, the Bay Program developed a draft *Strategy to Accelerate the Protection and Restoration of Submerged Aquatic Vegetation in the Chesapeake Bay*. The Corps was actively involved in the preparation of the strategy. The document, which is currently under review, identifies four major initiatives that must be implemented to restore SAV to historic levels:

- Meet water clarity criteria in areas designated for SAV use
- Provide existing beds greater protection from anthropogenic activities and invasive species
- Accelerate SAV restoration by planting 1,000 acres of new SAV beds by 2008
- Enhance SAV research, citizen involvement and education

The estimated cost of implementing the SAV strategy is $31 million.

Technology Transfer with the Netherlands: At the request of the Royal Netherlands Embassy and the Environmental Protection Agency, Robert Pace, Planning Division, Baltimore, represented the Corps of Engineers as part of a delegation of nine federal, state, interstate, and local government and Non-Government Organization (NGO) representatives in a study-tour of the Netherlands. The purpose of the visit was to observe Dutch practices in water management and watershed protection so that the members of the delegation might be able to apply some of the practices to the Chesapeake Bay. The trip included eight full days of meeting and discussion, presentations, and field visits to 10 Dutch cities and numerous project sites throughout south and central Netherlands.

Chesapeake Bay Watershed Restoration Conference: In September 2002, the Corps of Engineers participated in the three-day Chesapeake Bay Watershed Restoration conference held in Baltimore. The conference focused on the current state of knowledge of riparian buffers and wetland protection and restoration. Baltimore District Planning Division staff gave 5 presentations and displayed a Corps' Chesapeake Bay Restoration exhibit.

.

Meetings with Army Installations: As part of our Chesapeake Bay coordination activities, the Baltimore District offered to visit installations and educate them on specific bay-related topics. Two installations accepted the offer. We briefed Fort Detrick on Environmental Management Systems (EMS) on 10 September and the PA Army National Guard on MS4 Stormwater Permits on 17 September. Both meetings provided an excellent service to the facilities.

Anacostia Federal Biennial Workplan: Federal agencies committed to preparing an Anacostia River Federal Workplan and updating it biennially through the signing of the two Federal Agency Chesapeake Bay Program Agreements. The Corps of Engineers was designated as the lead agency for the workplan. The Corps prepared the first two *Biennial Federal Workplan*s in 1997 and 1999.

The purpose of the *Anacostia Federal Workplan* is to summarize ecosystem management and restoration actions, projects and programs that are being undertaken by federal agencies and on federal lands to help restore the Anacostia River watershed. The Anacostia River has been identified as one of the Chesapeake Bay Program's *Regions of Concern* due to the extensive environmental degradation it has experienced. Because federal agencies own more than 15 percent of the land in the watershed, the federal government plays a critical role in the restoration effort. It is the intent of this *Workplan* to help coordinate these efforts and to foster new partnerships among the various levels of government and non-governmental organizations.

In FY02, the Baltimore District initiated the 2002 update of the workplan. The decision was made to make the 2002 version of the *Workplan* web-based so that it is easily accessible to the public and can be updated more readily. By the fall of 2002, the Baltimore District had completed the website for the workplan. The federal agencies are currently inputting their project information into the website and it is expected that the workplan will be completed and available to the public by spring of 2003.

Corps Projects and Programs

The Corps has many projects and programs that are helping to meet the goals of the C2K Agreement. Below is a summary of those programs:

Civil Works Program: Baltimore and Norfolk Districts' Civil Works programs have more than 80 projects currently underway that will help restore fish and wildlife habitat to the Bay watershed. A few of the major GI/CG studies/projects underway include:

- Anacostia River Watershed Restoration
- Anacostia Federal Facilities Impact Assessment
- Elizabeth River Environmental Restoration
- Chesapeake Bay Oyster Recovery
- Chesapeake Bay Shoreline Erosion
- Eastern Shore – Mid-Bay Island
- Embrey Dam Removal, Rappahannock River
- Oyster Habitat Restoration, Tangier Sound
- Poplar Island Restoration
- Smith Island Environmental Restoration
- Upper Susquehanna – Cooperstown
- Middle Potomac Watershed Study
- Lynnhaven River Basin Study
- Oyster Habitat Restoration, Great Wicomico River

A few of the ongoing Continuing Authority Projects are:

- Blackwater National Wildlife Refuge Wetlands Restoration
- Dents Run, PA, Stream Restoration (Acid Mine Drainage)
- Ft. Chaplin/Ft. Dupont, D.C., Stream Restoration
- Hart-Miller Island Restoration
- Saxis Island, VA, Aquatic Ecosystem Restoration
- Tangier Island, VA, Ecosystem Restoration

In September 2002, the Senate Environment and Public Works Committee approved a Chesapeake Bay Study resolution. It directs the Corps to undertake a comprehensive review of the various water resource problems confronting the Chesapeake Bay and to develop a plan to address the problems. If funded, this authority would further allow the Corps to assist in the Chesapeake Bay restoration effort.

Operation and Maintenance Program: Operations and Maintenance activities include navigation actions, stewardship on Corps lands, and special initiatives such as the Baltimore Harbor Dredged Material Management Plan. Civil works flood control projects consist of fourteen dams and reservoirs (2 dry dams) and thirteen local flood protection projects that are federally maintained. Corps reservoirs are designed for multiple purposes that result in benefits to water quality, sediment retention, and recreational and educational opportunities. Reservoirs are operated during all weather conditions to sustain a minimum flow that supports living resources in downstream waters. Corps land managers continue to coordinate with resource agencies for protection and enhancement of wildlife and aquatic habitat.

Additional areas of stream bank stabilization were completed at Hammond Lake, Pennsylvania, in 2002. The stabilization will reduce erosion and concomitant

water quality effects. The project was completed in cooperation with the Natural Resource and Conservation Service and other state and local agencies. It is anticipated that the naturally occurring vegetation will reduce stream bank erosion and downstream sediment transport.

The Juniata College in Huntingdon, Pennsylvania has leased land at Raystown Lake for an environmental education field station since 1975. The existing buildings no longer meet the needs of the college, and in 2002 the college started construction on new facilities to support their environmental research and education activities. Expansion of the field station will provide a means to investigate the environmental and land use trends that impact the lake and the Raystown Branch of the Juniata River. The Raystown Branch is the longest tributary to the Juniata River with a watershed of approximately 960 square miles. The current construction activities are scheduled to be completed in 2003.

During FY02, the Corps continued to use dredged material beneficially. After placing about 16,000 cubic yards of sand at Little Wicomico in 2001, planting of American beachgrass along the dunes was accomplished in 2002. In addition, monitoring for impacts of the project on the endangered Northeastern Beach Tiger Beetle indicated that the population actually increased in the deposition area and the project site has the densest populations along the entire beach. The Corps also planted, with the co-operation of the National Aquarium, both Eastern Neck and Barren Islands. With the help of elected officials and volunteers, a 3-acre site along the shoreline of Eastern Neck Wildlife Refuge was planted with Spartina alterniflora and patens. This successful marsh planting was the result of dredging Chester River and placing 26,000 cubic yards of sandy material along the shoreline for the substrate. The Corps and the Aquarium also teamed together for additional planting at Barren Island National Wildlife Refuge, which received sandy material from the Honga River dredging. As part of the maintenance of the Twitch Cove and Big Thorofare channels, the Corps used dredged material to fill a breach that developed at the Martin Wildlife Refuge.

The largest beneficial use project in the Chesapeake Bay is the Restoration of Poplar Island. The project will restore 1,110 acres of wildlife habitat by placing, shaping, and planting approximately 38 million cubic yards of material dredged from the Baltimore Harbor approach channels over a 25-year period. The habitat created will include approximately 555 acres each of intertidal wetland and upland habitat.

Regulatory Program: The Corps' Regulatory Program is also accomplishing Chesapeake Bay Program goals. The Baltimore and Norfolk Districts reviewed more than 8000 permit applications in FY02 for work in waterways and wetlands within the Bay watershed.

During FY02, through partnerships with the States, the Regulatory Program met its goal of "no net loss" of wetlands. This is made possible through State "In lieu fee" programs: Virginia's with the VA Nature Conservancy; Maryland's with the Maryland Department of the Environment; and Pennsylvania's with the Pennsylvania Department of Environmental Protection and Ducks Unlimited. In addition, the Norfolk District has 19 mitigation banks and the Baltimore District has 16 mitigation banks in various stages of development.

With the issuance of the Virginia State Programmatic General Permit (SPGP) in November 2002, all the Bay States now have SPGPs, with strong Corps/State/Local partnerships in permitting. These strong Corps/State/Local partnerships insure that the C2K goals and Bay initiatives are captured in the regulatory process with everyone working together. The majority of regulatory reviews are now conducted early in the project development phase and all Corps/State/Local requirements are considered up-front in the process, resulting in more timely and consistent decisions, with increased environmental protection.

Military and Support for Others Programs: The Corps also helps meet the C2K goals by providing planning and environmental support to DOD and other federal and state agencies for construction, pollution prevention, stormwater management and sustainment of critical resource habitats throughout the Bay watershed. In 2002, the Corps provided NEPA compliance support for numerous military and other federal agency construction projects. This support included planning for compliance with new, stricter stormwater, habitat and pollutant regulations.

Sustaining critical natural resource habitat and pollution prevention remain a major part of the military planning program. Examples of planning efforts undertaken in 2002 in the Bay watershed were: development of GIS modeling tools for evaluating proposed development to help sustain biological and aquatic resource habitats at the Aberdeen Proving Ground, Maryland; development of Spill Pollution Compliance and Countermeasure Plans for six activities at Fort Indiantown Gap and four Pennsylvania National Guard armories; assessment of watershed health and recommendations to improve Midway Branch watershed vitality at Fort Meade,

Maryland; and identifying permitting requirements for installation compliance with FY03 federal stormwater management and water quality rules for the Fort Myer Military Community and the Maryland National Guard.

Contaminated Site Clean-Up: The Corps continues to provide design, construction, and technical assistance to the EPA's Superfund Program, which helps to meet the chemical contaminant reduction goals in the Bay Agreement. In 2002, the Corps and the EPA completed the clean-up of the former Southern Maryland Wood Treatment Plant property at a cost of $61 million. The heavily contaminated site was cleaned up to the highest standard, allowing it to be used for residential, agricultural or industrial development. The project included restoring a pond with floating contamination to a wetland swale. Each year, the Baltimore District performs roughly $100 million worth of environmental clean-up work.

Participation in Committees

The Corps actively participates in a number of the CBP committees and subcommittees. All of the committees provide a forum for the Corps and other agencies to learn about each others' activities, as well as identify and coordinate future restoration projects and partnerships.

Implementation Committee (IC): The IC is comprised of representatives from many federal and state agencies. Some of the major responsibilities of the IC are to track and evaluate progress on the C2K commitments, provide guidance on priorities, and review and approve strategies and work plans.

Federal Agencies Committee (FAC): The FAC is comprised of representatives that either own land in the watershed and/or have missions that impact water quality or the living resources in the Bay watershed. The FAC is responsible for representing federal policies in the CBP, and also provides a forum for information exchange regarding the numerous federal programs and projects. Federal Agency agreements were signed in 1994 and 1998 establishing specific goals and commitments for the Federal agencies. The Corps' commitments include preparing and implementing an Anacostia Federal Biennial Workplan, supporting the Elizabeth River Restoration Action Plan, and implementing beneficial use of dredged material projects. The Corps continues to support these commitments. In August 2002, the Norfolk District hosted a FAC meeting and briefed the committee on the Elizabeth River Restoration Project. The meeting included a boat tour of the River.

Living Resources Subcommittee (LRSc): The purpose of the LRSc is to coordinate the implementation of the Bay Program's efforts to conserve, enhance, and restore the living resources of the Bay watershed. Representatives from Baltimore District's Planning Division and Operations Division are actively involved in this subcommittee. Some of the key issues the LRSc dealt with in FY02 were the non-native oyster introduction, a strategy for SAV protection and restoration, new fish passage goals, and the finding of the invasive zebra mussel in reservoirs in the Bay watershed.

Modeling Subcommittee: Under the Support for Others Program, the Corps (Engineer Research and Development Center) has continued development of a refined computer model of the Chesapeake Bay. Development of the model is facilitated by quarterly review meetings with technical and management representatives in the Bay Program and national peer review representatives.

Corps FY02 CBP Funding Summary

The Corps' programs that support Chesapeake Bay restoration objectives include portions of the General Investigations Program, Construction General Program, the Installation Support Program, the Superfund Program, the Regulatory Program, and the Operations and Maintenance Program. The latter four programs are difficult to quantify, so only the civil works environmental study and project costs for FY02 are included below.

Direct Funding:
Chesapeake Bay Program Coordination-$162,000

Indirect Funding:
General Investigations Program - $2,400,000
Construction General - $44,000,000

Total FY2002 Program: $46,562,000